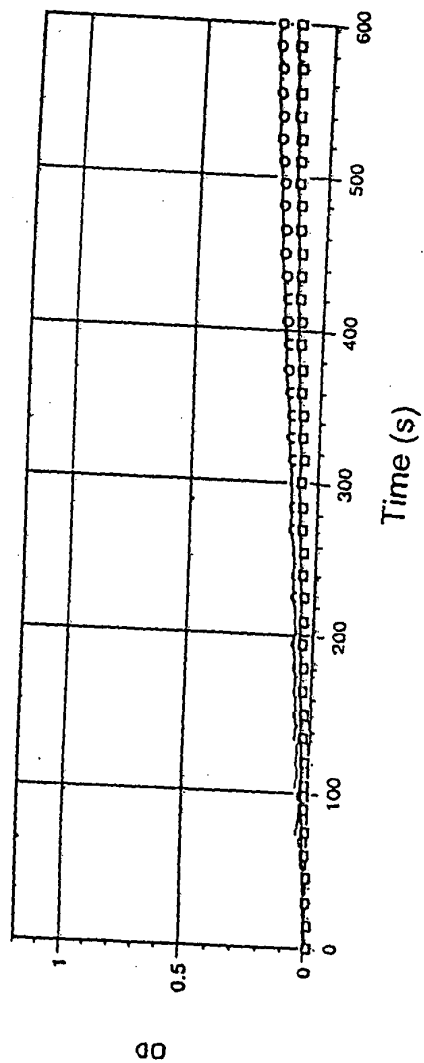


Wild type



$$V_{app}(S) = 21.8$$

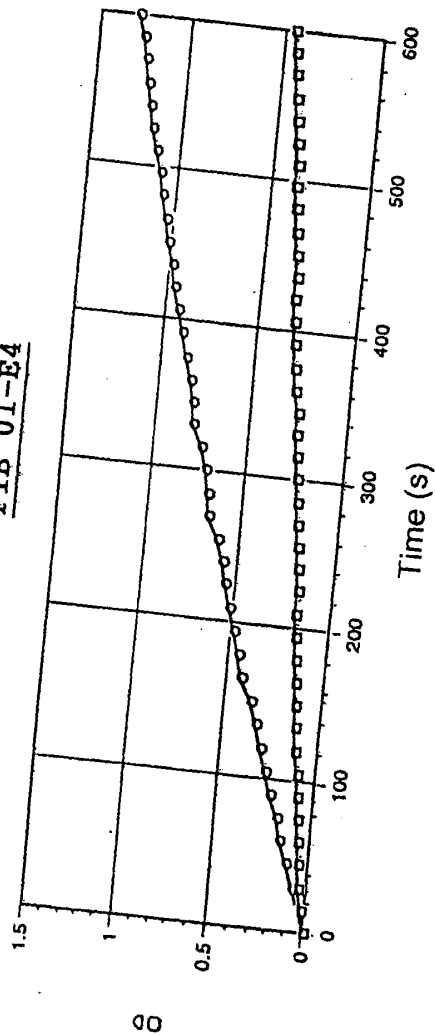
$$V_{app}(R) = 14.9$$

$$E_{app} = 1.5$$



FIG. 1A

PIB 01-E4

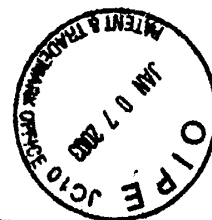


$$V_{app}(S) = 128.4$$

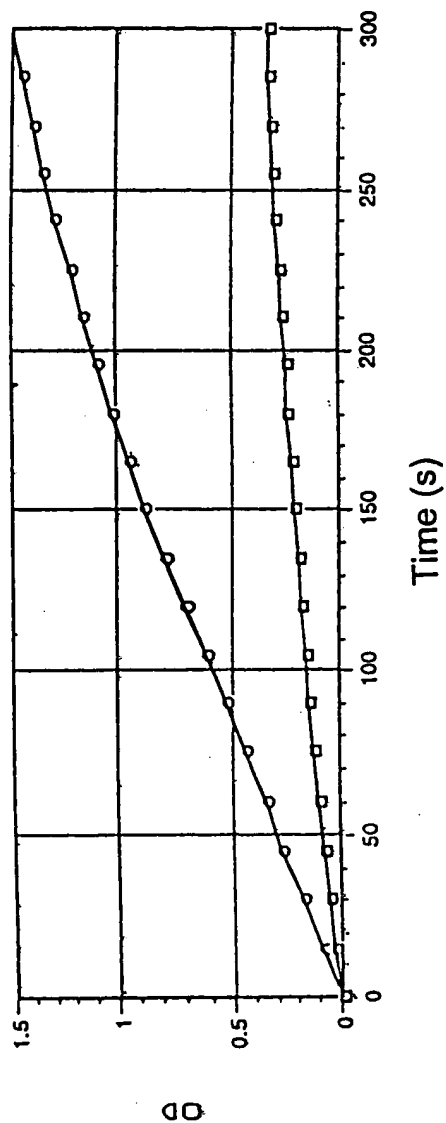
$$V_{app}(R) = 43.2$$

$$E_{app} = 3.0$$

FIG. 1B

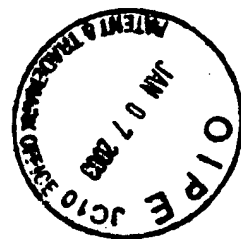


P2B 08-H3



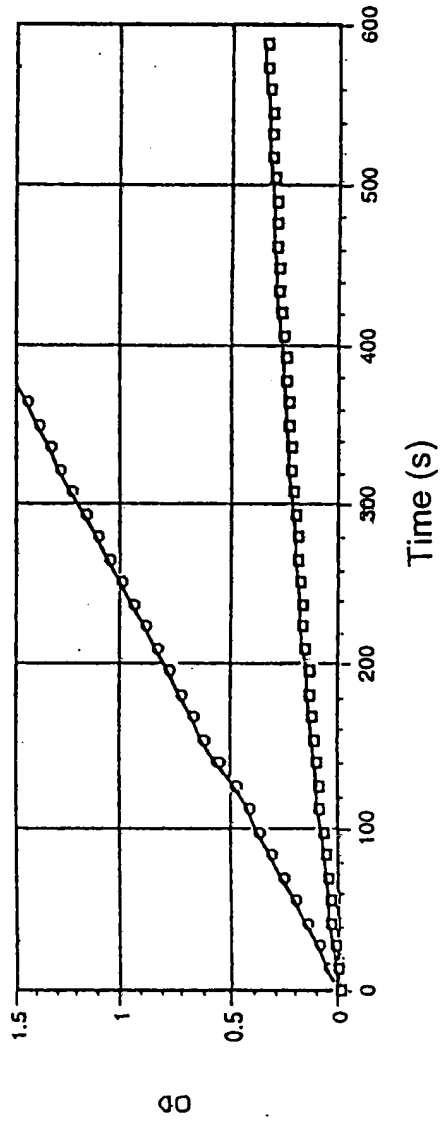
$V_{app}(S) = 310.8$        $V_{app}(R) = 67.4$        $E_{app} = 4.6$

FIG. 1C



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P3B 13-D10

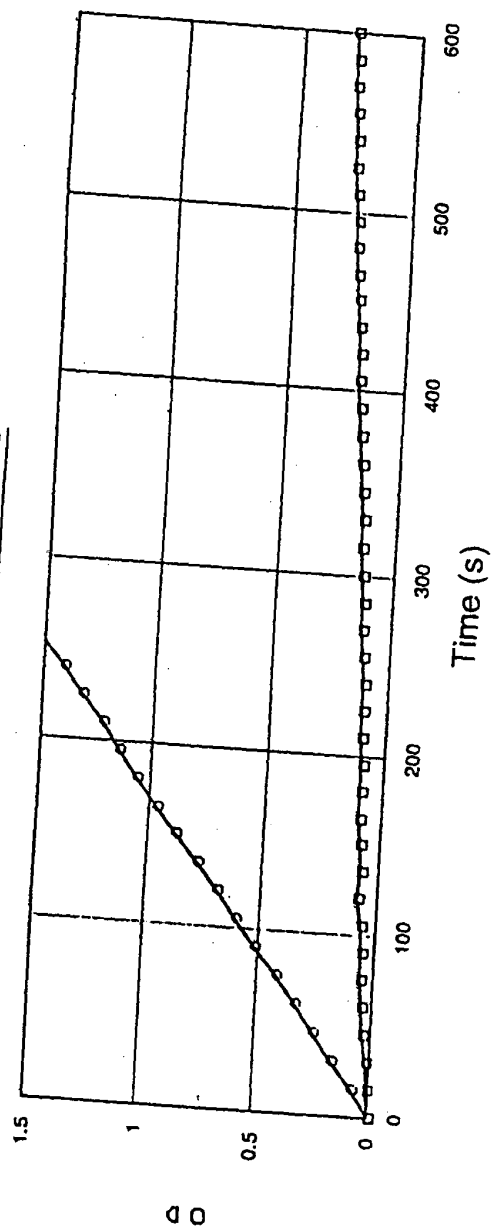


$V_{app}(S) = 241.1$        $V_{app}(R) = 35.2$        $E_{app} = 6.9$

FIG. 1D

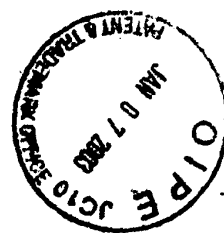


P4B 04-H3

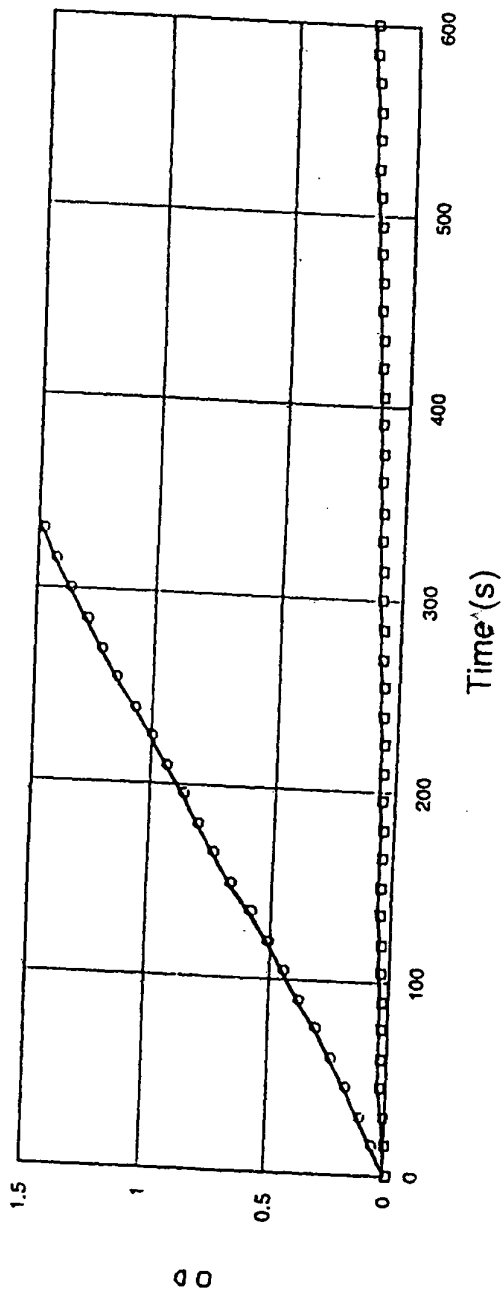


$$V_{app}(S) = 355.6 \quad V_{app}(R) = 26.5 \quad E_{app} = 13.4$$

FIG. 1E



P5B 14-C11



$$V_{app}(S) = 275.9$$

$$V_{app}(R) = 17.3$$

$$E_{app} = 15.9$$

FIG. 1F



Graph showing the relationship between  $\log a$  (Y-axis, ranging from 0 to 1.5) and Time (s) (X-axis, ranging from 0 to 600). The data points (circles and squares) show a linear decrease in  $\log a$  over time, indicating a first-order reaction.

$$E_{app} = 15.2$$

FIG. 1G



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### Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

10																			
G	G	A	T	C	C	C	C	C	G	G	T	T	C	T	C	C	C	G	G
G	G	A	T	C	C	C	C	C	G	G	T	T	C	T	C	C	C	G	G
G	G	A	T	C	C	C	C	C	G	G	T	T	C	T	C	C	C	G	G
G	G	A	T	C	C	C	C	C	G	G	T	T	C	T	C	C	C	G	G
G	G	A	T	C	C	C	C	C	G	G	T	T	C	T	C	C	C	G	G
G	G	A	T	C	C	C	C	C	G	G	T	T	C	T	C	C	C	G	G
G	G	A	T	C	C	C	C	C	G	G	T	T	C	T	C	C	C	G	G
G	G	A	T	C	C	C	C	C	G	G	T	T	C	T	C	C	C	G	G

### Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

20										30									
A	A	G	G	A	T	T	C	G	G	G	C	G	A	T	G	G	C	T	G
A	A	G	G	A	T	T	C	G	G	G	C	G	A	T	G	G	C	T	G
A	A	G	G	A	T	T	C	G	G	G	C	G	A	T	G	G	C	T	G
A	A	G	G	A	T	T	C	G	G	G	C	G	A	T	G	G	C	T	G
A	A	G	G	A	T	T	C	G	G	G	C	G	A	T	G	G	C	T	G
A	A	G	G	A	T	T	C	G	G	G	C	G	A	T	G	G	C	T	G
A	A	G	G	A	T	T	C	G	G	G	C	G	A	T	G	G	C	T	G
A	A	G	G	A	T	T	C	G	G	G	C	G	A	T	G	G	C	T	G

### Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

40										50									
G	C	A	G	G	A	C	G	C	G	C	C	C	C	T	C	G	G	C	C
G	C	A	G	G	A	C	G	C	G	C	C	C	C	T	C	G	G	C	C
G	C	A	G	G	A	C	G	C	G	C	C	C	C	T	C	G	G	C	C
G	C	A	G	G	A	C	G	C	G	C	C	C	C	T	C	G	G	C	C
G	C	A	G	G	A	C	G	C	G	C	C	C	C	T	C	G	G	C	C
G	C	A	G	G	A	C	G	C	G	C	C	C	C	T	C	G	G	C	C
G	C	A	G	G	A	C	G	C	G	C	C	C	C	T	C	G	G	C	C
G	C	A	G	G	A	C	G	C	G	C	C	C	C	T	C	G	G	C	C

### Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

60										70									
C	C	A	T	C	A	A	C	C	T	G	A	G	A	T	G	A	G	A	A
C	C	A	T	C	A	A	C	C	T	G	A	G	A	T	G	A	G	A	A
C	C	A	T	C	A	A	C	C	T	G	A	G	A	T	G	A	G	A	A
C	C	A	T	C	A	A	C	C	T	G	A	G	A	T	G	A	G	A	A
C	C	A	T	C	A	A	C	C	T	G	A	G	A	T	G	A	G	A	A
C	C	A	T	C	A	A	C	C	T	G	A	G	A	T	G	A	G	A	A
C	C	A	T	C	A	A	C	C	T	G	A	G	A	T	G	A	G	A	A
C	C	A	T	C	A	A	C	C	T	G	A	G	A	T	G	A	G	A	A

### Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

80										90									
C	A	A	C	A	T	G	A	A	G	A	A	G	A	A	G	T	C	T	C
C	A	A	C	A	T	G	A	A	G	A	A	G	A	A	G	T	C	T	C
C	A	A	C	A	T	G	A	A	G	A	A	G	A	A	G	T	C	T	C
C	A	A	C	A	T	G	A	A	G	A	A	G	A	A	G	T	C	T	C
C	A	A	C	A	T	G	A	A	G	A	A	G	A	A	G	T	C	T	C
C	A	A	C	A	T	G	A	A	G	A	A	G	A	A	G	T	C	T	C
C	A	A	C	A	T	G	A	A	G	A	A	G	A	A	G	T	C	T	C
C	A	A	C	A	T	G	A	A	G	A	A	G	A	A	G	T	C	T	C

### Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

100										110									
T	G	C	T	C	C	C	C	C	T	C	G	G	C	C	T	G	G	C	C
T	G	C	T	C	C	C	C	C	T	C	G	G	C	C	T	G	G	C	C
T	G	C	T	C	C	C	C	C	T	C	G	G	C	C	T	G	G	C	C
T	G	C	T	C	C	C	C	C	T	C	G	G	C	C	T	G	G	C	C
T	G	C	T	C	C	C	C	C	T	C	G	G	C	C	T	G	G	C	C
T	G	C	T	C	C	C	C	C	T	C	G	G	C	C	T	G	G	C	C
T	G	C	T	C	C	C	C	C	T	C	G	G	C	C	T	G	G	C	C
T	G	C	T	C	C	C	C	C	T	C	G	G	C	C	T	G	G	C	C

FIG. 2A





Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

120	130	
A T C G G T C T C G C C T C T C T C G C		139
A T C G G T C T C G C C T C T C T C G C		140
A T C G G T C T C G C C T C T C T C G C		140
A T C G G T C T C G C C T C T C T C G C		140
A T C G G T C T C G C C T C T C T C G C		140
A T C G G T C T C G C C T C T C T C G C		140
A T C G G T C T C G C C T C T C T C G C		140

Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

140	150	
T G C C A G C C C T C T G A T C C A G G		159
T G C C A G C C C T C T G A T C C A G G		160
T G C C A G C C C T C T G A T C C A G G		160
T G C C A G C C C T C T G A T C C A G G		160
T G C C A G C C C T C T G A T C C A G G		160
T G C C A G C C C T C T G A T C C A G G		160
T G C C A G C C C T C T G A T C C A G G		160

Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

160	170	
C C A G C A C C T A C A C C C A G A C C		179
C C A G C A C C T A C A C C C A G A C C		180
C C A G C A C C T A C A C C C A G A C C		180
C C A G C A C C T A C A C C C A G A C C		180
C C A G C A C C T A C A C C C A G A C C		180
C C A G C A C C T A C A C C C A G A C C		180
C C A G C A C C T A C A C C C A G A C C		180

Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

180	190	
A A A T A C C C C A T C G T G C T G G C		199
A A A T A C C C C A T C G T G C T G G C		200
A A A T A C C C C A T C G T G C T G G C		200
A A A T A C C C C A T C G T G C T G G C		200
A A A T A C C C C A T C G T G C T G G C		200
A A A T A C C C C A T C G T G C T G G C		200
A A A T A C C C C A T C G T G C T G G C		200

Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

200	210	
C C A C G G C A T G C T C G G C T T C G		219
C C A C G G C A T G C T C G G C T T C G		220
C C A C G G C A T G C T C G G C T T C G		220
C C A C G G C A T G C T C G G C T T C G		220
C C A C G G C A T G C T C G G C T T C G		220
C C A C G G C A T G C T C G G C T T C G		220
C C A C G G C A T G C T C G G C T T C G		220

Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

220	230	
A C A A C A T C C T C G G G G T C G A C		239
A C A A C A T C C T C G G G G T C G A C		240
A C A A C A T C C T C G G G G T C G A C		240
A C A A C A T C C T C G G G G T C G A C		240
A C A A C A T C C T C G G G G T C G A C		240
A C A A C A T C C T C G G G G T C G A C		240
A C A A C A T C C T C G G G G T C G A C		240

FIG. 2B



### Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

240	250	
T A C T G G T T C G G C A T T C C C A G		259
T A C T G G T T C G G C A T T C C C A G		260
T A C T G G T T C G G C A T T C C C A G		260
T A C T G G T T C G G C A T T C C C A G		260
T A C T G G T T C G G C A T T C C C A G		260
T A C T G G T T C G G C A T T C C C A G		260
T A C T G G T T C G G C A T T C C C A G		260
T A C T G G T T C G G C A T T C C C A G		260

### Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

260	270	
C G C C T T G C G C C G T G A C G G T G		279
C G C C T T G C G C C G T G A C G G T G		280
C G C C T T G C G C C G T G A C G G T G		280
C G C C T T G C G C C G T G A C G G T G		280
C G C C T T G C G C C G T G A C G G T G		280
C G C C T T G C G C C G T G A C G G T G		280
C G C C T T G C G C C G T G A C G G T G		280
C G C C T T G C G C C G T G A C G G T G		280

### Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

280	290	
C C C A G G T C T A C G T C A C C G A A		299
C C C A G G T C T A C G T C A C C G A A		300
C C C A G G T C T A C G T C A C C G A A		300
C C C A G G T C T A C G T C A C C G A A		300
C C C A G G T C T A C G T C A C C G A A		300
C C C A G G T C T A C G T C A C C G A A		300
C C C A G G T C T A C G T C A C C G A A		300
C C C A G G T C T A C G T C A C C G A A		300

### Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

300	310	
G T C A G C C A G T T G G A C A C C T C		319
G T C A G C C A G T T G G A C A C C T C		320
G T C A G C C A G T T G G A C A C C T C		320
G T C A G C C A G T T G G A C A C C T C		320
G T C A G C C A G T T G G A C A C C T C		320
G T C A G C C A G T T G G A C A C C T C		320
G T C A G C C A G T T G G A C A C C T C		320
G T C A G C C A G T T G G A C A C C T C		320

### Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

320	330	
G G A A G T C C G C G G C G A G C A G T		339
G G A A G T C C G C G G C G A G C A G T		340
G G A A G T C C G C G G C G A G C A G T		340
G G A A G T C C G C G G C G A G C A G T		340
G G A A G T C C G C G G C G A G C A G T		340
G G A A G T C C G C G G C G A G C A G T		340
G G A A G T C C G C G G C G A G C A G T		340
G G A A G T C C G C G G C G A G C A G T		340

### Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

340	350	
T G C T G C A A C A G G T G G A G G A A		359
T G C T G C A A C A G G T G G A G G A A		360
T G C T G C A A C A G G T G G A G G A A		360
T G C T G C A A C A G G T G G A G G A A		360
T G C T G C A A C A G G T G G A G G A A		360
T G C T G C A A C A G G T G G A G G A A		360
T G C T G C A A C A G G T G G A G G A A		360
T G C T G C A A C A G G T G G A G G A A		360

FIG. 2C



Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

360	370	
A T C G T C G C C C T C A G C G G C C A		379
A T C G T C G C C C T C A G C G G C C A		380
A T C G T C G C C C T C A G C G G C C A		380
A T C G T C G C C C T C A G C G G C C A		380
A T C G T C G C C C T C A G C G G C C A		380
A T C G T C G C C C T C A G C G G C C A		380
A T C G T C G C C C T C A G C G G C C A		380
A T C G T C G C C C T C A G C G G C C A		380

Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

380	390	
G C C C A A G G T C A A C C T G A T C G		399
G C C C A A G G T C A A C C T G A T C G		400
G C C C A A G G T C A A C C T G A T C G		400
G C C C A A G G T C A A C C T G A T C G		400
G C C C A A G G T C A A C C T G A T C G		400
G C C C A A G G T C A A C C T G A T C G		400
G C C C A A G G T C A A C C T G A T C G		400
G C C C A A G G T C A A C C T G A T C G		400

Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

400	410	
G C C A C A G C C A C G G C G G G C C G		419
G C C A C A G C C A C G G C G G G C C G		420
G C C A C A G C C A C G G C G G G C C G		420
G C C A C A G C C A C G G C G G G C C G		420
G C C A C A G C C A C G G C G G G C C G		420
G C C A C A G C C A C G G C G G G C C G		420
G C C A C A G C C A C G G C G G G C C G		420
G C C A C A G C C A C G G C G G G C C G		420

Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

420	430	
A C C A T C C G C T A C G T C G C C G C		439
A C C A T C C G C T A C G T C G C C G C		440
A C C A T C C G C T A C G T C G C C G C		440
A C C A T C C G C T A C G T C G C C G C		440
A C C A T C C G C T A C G T C G C C G C		440
A C C A T C C G C T A C G T C G C C G C		440
A C C A T C C G C T A C G T C G C C G C		440
A C C A T C C G C T A C G T C G C C G C		440

Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

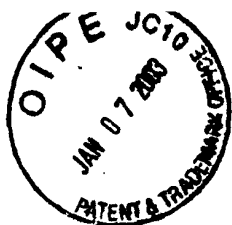
440	450	
C G T A C G T C C C G A C C T G A T C G		459
C G T A C G T C C C G A C C T G A T C G		460
C G T A C G T C C C G A C C T G A T C G		460
C G T A C G T C C C G A C C T G A T C G		460
C G T A C G T C C C G A C C T G A T C G		460
C G T A C G T C C C G A C C T G A T C G		460
C G T A C G T C C C G A C C T G A T C G		460
C G T A C G T C C C G A C C T G A T C G		460

Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

460	470	
C T T C C G C C A C C A G C G T C G G C		479
C T T C C G C C A C C A G C G T C G G C		480
C T T C C G C C A C C A G C G T C G G C		480
C T T C C G C C A C C A G C G T C G G C		480
C T T C C G C C A C C A G C G T C G G C		480
C T T C C G C C A C C A G C G T C G G C		480
C T T C C G C C A C C A G C G T C G G C		480
C T T C C G C C A C C A G C G T C G G C		480

FIG. 2D



Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

480	490	
G C C C C G C A C A A G G G T T C G G A		499
G C C C C G C A C A A G G G T T C G G A		500
G C C C C G C A C A A G G G T T C G G A		500
G C C C C G C A C A A G G G T T C G G A		500
G C C C C G C A C A A G G G T T C G G A		500
G C C C C G C A C A A G G G T T C G G A		500
G C C C C G C A C A G G G G T T C G G A		500
G C C C C G C A C A A G G G T T C G G A		500

Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

500	510	
C A C C G C C G A C T T C C T G C G C C		519
C A C C G C C G A C T T C C T G C G C C		520
C A C C G C C G A C T T C C T G C G C C		520
C A C C G C C G A C T T C C T G C G C C		520
C A C C G C C G A C T T C C T G C G C C		520
C A C C G C C G A C T T C C T G C G C C		520
C A C C G C C G A C T T C C T G C G C C		520
C A C C G C C G A C T T C C T G C G C C		520

Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

520	530	
A G A T C C C A C C G G G T T C G G C C		539
A G A T C C C A C C G G G T T C G G C C		540
A G A T C C C A C C G G G T T C G G C C		540
A G A T C C C A C C G G G T T C G G C C		540
A G A T C C C A C C G G G T T C G G C C		540
A G A T C C C A C C G G G T T C G G C C		540
A G A T C C C A C C G G G T T C G G C C		540
A G A T C C C A C C G G G T T C G G C C		540

Wild type

P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

540	550	
G G C G A G G C A G T C C T C T C C G G		559
G G C G A G G C A G T C C T C T C C G G		560
G G C G A G G C A G T C C T C T C C G G		560
G G C G A G G C A G T C C T C T C C G G		560
G G C G A G G C A G T C C T C T C C G G		560
G G C G A G G C A G T C C T C T C C G G		560
G G C G A G G C A G T C C T C T C C G G		560
G G C G A G G C A G T C C T C T C C G G		560

Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

560	570	
G C T G G T C A A C A G C C T C G G C G		579
G C T G G T C A A C A G C C T C G G C G		580
G C T G G T C A A C A G C C T C G G C G		580
G C T G G T C A A C A G C C T C G G C G		580
G C T G G T C A A C A G C C T C G G C G		580
G C T G G T C A A C A G C C T C G G C G		580
G C T G G T C A A C A G C C T C G G C G		580
G C T G G T C A A C A G C C T C G G C G		580

Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

580	590	
C G C T G A T C A G C T T C C T T T C C		599
C G C T G A T C A G C T T C C T T T C C		600
C G C T G A T C A G C T T C C T T T C C		600
C G C T G A T C A G C T T C C T T T C C		600
C G C T G A T C A G C T T C C T T T C C		600
C G C T G A T C A G C T T C C T T T C C		600
C G C T G A T C A G C T T C C T T T C C		600
C G C T G A T C A G C T T C C T T T C C		600

FIG. 2E



### Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

600	610	
A G C G G C A	G G C A C C G G T A C G C A	619
A G C G G C G	G G C A C C G G T A C G C A	620
A G C G G C G	G G C A C C G G T A C G C A	620
A G C G G C G	G G C A C C G G T A C G C A	620
A G C G G C G	G G C A C C G G T A C G C A	620
A G C G G C G	G G C A C C G G T A C G C A	620
A G C G G C G	G G C A C C G G T A C G C A	620
A G C G G C G	G G C A C C G G T A C G C A	620

### Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

620	630	
G A A T T C A	C T G G G C T C G C T G G	639
G A A T T C A	C T G G G C T C G C T G G	640
G A A T T C A	C T G G G C T C G C T G G	640
G A A T T C A	C T G G G C T C G C T G G	640
G A A T T C A	C T G G G C T C G C T G G	640
G A A T T C A	C T G G G C T C G C T G G	640
G A A T T C A	C T G G G C T C G C T G G	640
G A A T T C A	C T G G G C T C G C T G G	640

### Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

640	650	
A G T C G C T G A A C A G C G A G G G T		659
A G T C G C T G A A C A G C G A G G G T		660
A G T C G C T G A A C A G C G A G G G T		660
A G T C G C T G A A C A G C G A G G G T		660
A G T C G C T G A A C A G C G A G G G T		660
A G T C G C T G A A C A G C G A G G G T		660
A G T C G C T G A A C A G C G A G G G T		660
A G T C G C T G A A C A G C G A G G G T		660

### Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

660	670	
G C C G C G C G C T T C A A C G C C A A		679
G C C G C G C G C T T C A A C G C C A A		680
G C C G C G C G C T T C A A C G C C A A		680
G C C G C G C G C T T C A A C G C C A A		680
G C C G C G C G C T T C A A C G C C A A		680
G C C G C G C G C T T C A A C G C C A A		680
G C C G C G C G C T T C A A C G C C A A		680
G C C G C G C G C T T C A A C G C C A A		680

### Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

680	690	
G T A C C C G C A G G G C A T C C C C A		699
G T A C C C G C A G G G C A T C C C C A		700
G T A C C C G C A G G G C A T C C C C A		700
G T A C C C G C A G G G C A T C C C C A		700
G T A C C C G C A G G G C A T C C C C A		700
G T A C C C G C A G G G C A T C C C C A		700
G T A C C C G C A G G G C A T C C C C A		700
G T A C C C G C A G G G C A T C C C C A		700

### Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

700	710	
C C T C G G C C T G C G G C G A A G G C		719
C C T C G G C C T G C G G C G A A G G C		720
C C T C G G C C T G C G G C G A A G G C		720
C C T C G G C C T G C G G C G A A G G C		720
C C T C G G C C T G C G G C G A A G G C		720
C C T C G G C C T G C G G C G A A G G C		720
C C T C G G C C T G C G G C G A A G G C		720
C C T C G G C C T G C G G C G A A G G C		720

FIG. 2F



### Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

720	730	
G C C T A C A A G G T C A A C G G C G T		739
G C C T A C A A G G T C A A C G G C G T		740
G C C T A C A A G G T C A A C G G C G T		740
G C C T A C A A G G T C A A C G G C G T		740
G C C T A C A A G G T C A A C G G C G T		740
G C T T A C A A G G T C A A C G G C G T		740
G C T T A C A A G G T C A A C G G C G T		740
G C C T A C A A G G T C A A C G G C G T		740

### Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

740	750	
G A G C T A T T A C T C C T G G A G C G		759
G A G C T A T T A C T C C T G G A G C G		760
G A G C T A T T A C T C C T G G A G C G		760
G A G C T A T T A C T C C T G G A G C G		760
G A G C T A T T A C T C C T G G A G C G		760
G A G C T A T T A C T C C T G G A G C G		760
G A G C T A T T A C T C C T G G A G C G		760
G A G C T A T T A C T C C T G G A G C G		760

### Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

760	770	
G T T C C T C G C C G C T G A C C A A C		779
G T T C C T C G C C G C T G A C C A A C		780
G T T C C T C G C C G C T G A C C A A C		780
G T T C C T C G C C G C T G A C C A A C		780
G T T C C T C G C C G C T G A C C A A C		780
G T T C C T C G C C G C T G A C C A A C		780
G T T C C T C G C C G C T G A C C A A C		780
G T T C C T C G C C G C T G A C C A A C		780

### Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

780	790	
T T C C T C G A T C C G A G C G A C G C		799
T T C C T C G A T C C G A G C G A C G C		800
T T C C T C G A T C C G A G C G A C G C		800
T T C C T C G A T C C G A G C G A C G C		800
T T C C T C G A T C C G A G C G A C G C		800
T T C C T C G A T C C G A G C G A C G C		800
T T C C T C G A T C C G A G C G A C G C		800
T T C C T C G A T C C G A G C G A C G C		800

### Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

800	810	
C T T C C T C G G C G C C T C G T C G C		819
C T T C C T C G G C G C C T C G T C G C		820
C T T C C T C G G C G C C T C G T C G C		820
C T T C C T C G G C G C C T C G T C G C		820
C T T C C T C G G C G C C T C G T C G C		820
C T T C C T C G G C G C C T C G T C G C		820
C T T C C T C G G C G C C T C G T C G C		820
C T T C C T C G G C G C C T C G T C G C		820

### Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

820	830	
T G A C C T T C A A G A A C G G C A C C		839
T G A C C T T C A A G A A C G G C A C C		840
T G A C C T T C A A G A A C G G C A C C		840
T G A C C T T C A A G A A C G G C A C C		840
T G A C C T T C A A G A A C G G C A C C		840
T G A C C T T C A A G A A C G G C A C C		840
T G A C C T T C A A G A A C G G C A C C		840
T G A C C T T C A A G A A C G G C A C C		840

FIG. 2G



### Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

840	850	
G C C A A C G A C G G C C T G G T C G G		859
G C C A A C G A C G G C C T G G T C G G		860
G C C A A C G A C G G C C T G G T C G G		860
G C C A A C G A C G G C C T G G T C G G		860
G C C A A C G A C G G C C T G G T C G G		860
G C C A A C G A C G G C C T G G T C G G		860
G C C A A C G A C G G C C T G G T C G G		860

### Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

860	870	
C A C C T G C A G T T C G C A C C T G G		879
C A C C T G C A G T T C G C A C C T G G		880
C A C C T G C A G T T C G C A C C T G G		880
C A C C T G C A G T T C G C A C C T G G		880
C A C C T G C A G T T C G C A C C T G G		880
C A C C T G C A G T T C G C A C C T G G		880
C A C C T G C A G T T C G C A C C T G G		880

### Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

880	890	
G C A T G G T G A T C C G C G A C A A C		899
G C A T G G T G A T C C G C G A C A A C		900
G C A T G G T G A T C C G C G A C A A C		900
G C A T G G T G A T C C G C G A C A A C		900
G C A T G G T G A T C C G C G A C A A C		900
G C A T G G T G A T C C G C G A C A A C		900
G C A T G G T G A T C C G C G A C A A C		900

### Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

900	910	
T A C C G G A T G A A C C A C C T G G A		919
T A C C G G A T G A A C C A C C T G G A		920
T A C C G G A T G A A C C A C C T G G A		920
T A C C G G A T G A A C C A C C T G G A		920
T A C C G G A T G A A C C A C C T G G A		920
T A C C G G A T G A A C C A C C T G G A		920
T A C C G G A T G A A C C A C C T G G A		920

### Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

920	930	
C G A G G T G A A C C A G G T C T T C G		939
C G A G G T G A A C C A G G T C T T C G		940
C G A G G T G A A C C A G G T C T T C G		940
C G A G G T G A A C C A G G T C T T C G		940
C G A G G T G A A C C A G G T C T T C G		940
C G A G G T G A A C C A G G T C T T C G		940
C G A G G T G A A C C A G G T C T T C G		940

### Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

940	950	
G C C T C A C C A G C C T G T T C G A G		959
G C C T C A C C A G C C T G T T C G A G		960
G C C T C A C C A G C C T G T T C G A G		960
G C C T C A C C A G C C T G T T C G A G		960
G C C T C A C C A G C C T G T T C G A G		960
G C C T C A C C A G C C T G T T C G A G		960
G C C T C A C C A G C C T G T T C G A G		960

FIG. 2H



Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

960	970	
A C C A G C C C G G T C A G C G T C T A		979
A C C A G C C C G G T C A G C G T C T A		980
A C C A G C C C G G T C A G C G T C T A		980
A C C A G C C C G G T C A G C G T C T A		980
A C C A G C C C G G T C A G C G T C T A		980
A C C A G C C C G G T C A G C G T C T A		980
A C C A G C C C G G T C A G C G T C T A		980

Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

980	990	
C C G C C A G C A C G C C A A C C G C C		999
C C G C C A G C A C G C C A A C C G C C		1000
C C G C C A G C A C G C C A A C C G C C		1000
C C G C C A G C A C G C C A A C C G C C		1000
C C G C C A G C A C G C C A A C C G C C		1000
C C G C C A G C A C G C C A A C C G C C		1000
C C G C C A G C A C G C C A A C C G C C		1000

Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

1000	1010	
T G A A G A A C G C C A G C C T G T A G		1019
T G A A G A A C G C C A G C C T G T A G		1020
T G A A G A A C G C C A G C C T G T A G		1020
T G A A G A A C G C C A G C C T G T A G		1020
T G A A G A A C G C C A G C C T G T A G		1020
T G A A G A A C G C C A G C C T G T A G		1020
T G A A G A A C G C C A G C C T G T A G		1020

Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

1020	1030	
G A C C C C G G C C G G G G C C T C G G		1039
G A C C C C G G C C G G G G C C T C G G		1040
G A C C C C G G C C G G G G C C T C G G		1040
G A C C C C G G C C G G G G C C T C G G		1040
G A C C C C G G C C G G G G C C T C G G		1040
G A C C C C G G C C G G G G C C T C G G		1040
G A C C C C G G C C G G G G C C T C G G		1040

Wild type

P1B 01-H1  
P1B 01-E4  
P2B 08-H3  
P3B 13-D10  
P4B 04-H3  
P5B 14-C11  
P4BSF 03-G10

1040		
C C C G G G C C		1047
C C C G G G C C C		1049
C C C G G G C C C		1049
C C C G G G C C C		1049
C C C G G G C C C		1049
C C C G G G C C C		1050
C C C G G G C C C		1049
C C C G G G C C C		1049

FIG. 2I